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## A NEW SILENE FROM NORTHWESTERN CALIFORNIA

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Long past is the era in California botany when a collector could count among his season's haul a good proportion of undescribed species. Most areas of the state are sufficiently well known so as to limit the likelihood of uncovering anything new. Nowadays, range extensions, records of new adventives, and the discovery of some inconspicuous annual that fails to

<sup>1</sup> Supported by funds from the State of Washington Initiative No. 171 and by the National Science Foundation, Grant G-1323.

match any known relative, serve to satisfy the field botanist's taste for novelties. When a hitherto undescribed perennial which is an element of a stable plant community is found, it is of more than passing interest. Such discovery is most likely in the relatively little explored mountainous terrain of northwestern California. *Silene marmorensis* Kruckeberg, described below, is one of these latter day discoveries, having been collected in 1954 by Dr. C. Leo Hitchcock along the forested slopes of the Marble Mountains in southwestern Siskiyou County.

For the past eight years, I have been maintaining a collection of living plants of North American species of *Silene*. The plants have been grown for purposes of observation under uniform conditions, for determining chromosome number (Kruckeberg 1953, 1960), and for assessing degree of genetic relationships by means of interspecific hybridization (Kruckeberg 1954). The genus is represented in California by twenty native species (*sensu* Hitchcock and Maguire 1947), nearly all of which are well represented in herbaria. Moreover, most of them are readily distinguishable and thus stand out as clearly defined species. Having worked with living plants of all the Californian species as well as most of the known species occurring elsewhere in North America, I was genuinely impressed with a specimen that did not fall into place with any known species.

In general habit, *Silene marmorensis* might be confused with the Sierra Nevada *S. verecunda* Wats. subsp. *platyota* (Wats.) H. & M., both having long, flexuous stems and short, lanceolate leaves. In inflorescence and floral characters, though, the new species combines features of at least three species—*S. campanulata* Wats., *S. lemmonii* Wats., and *S. bridgesii* Rohrb.—all of which share, as well, the common characteristics of an ovoid, cartilaginous capsule and large black seeds; in addition, all four species are tetraploid ( $2n = 48$ ). The new species appears most closely related to *S. bridgesii* of the yellow pine belt in the Sierra Nevada, owing to the close correspondence of the two species in inflorescence and flowers. However, in *S. marmorensis*, the flowers are not pendant, nor do the proportions of its calyx, petals, and style match those of *S. bridgesii*.

The suite of characters which defines *S. marmorensis* can be summarized as follows. The several wiry, weakly ascending stems bear 5–7 pairs of uniformly short, lanceolate leaves; the open, lax, glandular inflorescence bears 4–6 pairs of lateral cymules, with the cymules consisting of single flowers in wild plants and the lateral flowers apparently abortive; the flowering calyces are elongate, ovate-lanceolate, and are borne divaricately on thin, wiry pedicels. The pinkish petals have a simple, bifid blade at the base of which are the two laterally divaricate, erose auricles; the appendages are short and rather broad. No one of these features is specific for a western *Silene*, but in ensemble, they contrive to give a picture of a rather delicate, unassuming grace and uniqueness to the plant (figs. 1–3).

Having examined only two collections of *S. marmorensis*, it would be rash to attempt a delimitation of its distribution and habitat preference.

The two specimens cited below were collected along the steep, winding forest road leading northeast up to Camp Three from the confluence of the Salmon and Klamath rivers at Somes Bar. The terrain is steep, forested mountainside with a south to southwest exposure. A topotype collection (*Kruckeberg 4023*) grew in loose talus of gabbroic rock in a fairly open stand of Douglas fir, black oak, and madrone. A list of associated species is appended to the species description.

***Silene marmorensis*** sp. nov.<sup>2</sup> Planta perennis tenui radice; caudice caulibus compluribus tenuibus, 2.5–4.0 dm. longis, puberulentis, supra glandulosis; foliis caulinis 5–7 paribus, fere eadem magnitudine, lanceolatis, 3.0–4.5 cm. longis, 0.3–0.5 cm. latis, scabrido-pubescentibus; bracteis reductis, lineari-lanceolatis, glandulosis; inflorescentibus terminalibus, 10–20 cm. longis, fere simplicibus, cymulis 5–7 iugis, pedicellis 7–10 mm. longis, filiformibus, glandulosis; calyce 13 mm. longo, anguste elongato-ovato, glanduloso, minus valide 10-nervo, lobis late lanceolatis, 3 mm. longis; calyce in fructu campanulato; corolla supra ex rubro pallea, infra subviridilurida (galbino), ungue 8–10 mm. longo, glabrato, sursum latiore, auriculo parvo eroso in utroque summae latere, lamina 4–6 mm. longa oblongata, alte bilobata, lobis integris vel in apice tenuiter erosis, appendicibus 2, oblongatis; staminibus exsertis, in tubo compressis, filamentis 11–13 mm. longis, glabratis, polline subfusco; stipitibus 3–4 mm. longis, puberulentis; stylis 3, 10–12 mm. longis, filiformibus, papillis stigmatum paucis et tantummodo in apice styli; ovariis glabratis ovatis maturitate et ligno-cartilagineis et 5-dentatis; seminibus 2.5 mm. longis, nigris, fulgentibus, tuberculis ex ordinibus brevibus conicis.

Perennial, from a long slender taproot, the multicapital crown bearing several underground, erect branches, each of which terminates above ground in a slender stem, 2.5–4.0 dm. long, stems simple, purplish and eglandular-pubescent at base, retrorsely glandular-pubescent above, especially on branches of inflorescence; the 5–7 pairs of cauline leaves similar in size and shape, reduced only in the inflorescence, lanceolate, 3.0–4.5 cm. long, 0.3–0.5 cm. wide, sparsely scabrid-pubescent on both surfaces, the leaf-like bracts of inflorescence progressively reduced upwards, short-lanceolate, glandular; inflorescence terminal, 10–20 cm. long, simple, or with 1–2 branches, each bearing 5–7 pairs of cymules (the lateral flowers of each cymule apparently abortive in field material); pedicels 7–10 mm. long, filiform, glandular; calyx in flower indistinctly 10-nerved, glandular, narrowly elongate-ovate, slightly constricted at base, about 13 mm. long, becoming campanulate through distension by the maturing ovary, the teeth ovate-lanceolate, short-acuminate, 3 mm. long, somewhat membranous in the sinuses, margins of teeth densely long-ciliate; corolla pale pink above, greenish yellow beneath, the claw 8–10 mm. long, glabrous throughout, slender at base widening above, with a small erose, angular auricle at either side of summit, the blade 4–6 mm. long, oblong, bilobed

<sup>2</sup> The Latin diagnosis kindly prepared by W. M. Read, Professor of Classics, University of Washington.



FIG. 1. Type specimen of *Silene marmorensis*, Hitchcock 20221 (WTU 179156),  $\times \frac{1}{8}$ .

over one-half its length, the lobes oblong, entire to slightly erose at tip, appendages two, broadly oblong, truncate, the free margins entire; stamens slightly exerted, crowded at throat, the filaments 11–13 mm. long, glabrous throughout; pollen tawny brown in color; carpophore 3–4

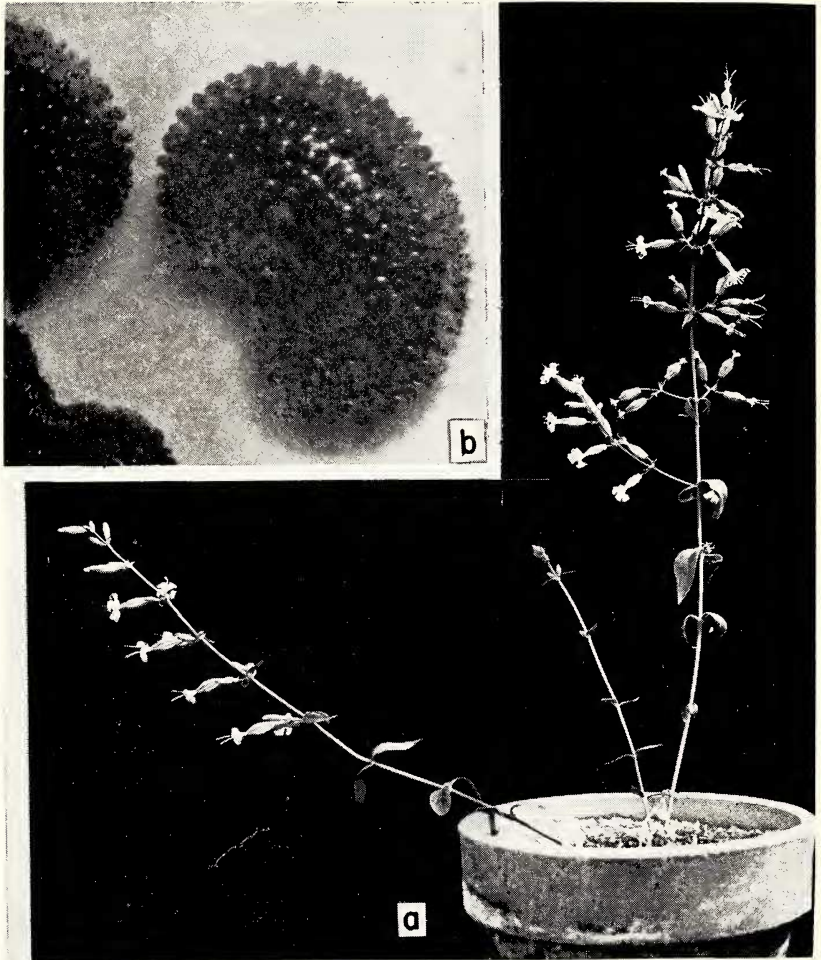


FIG. 2. *Silene marmorensis*: a, plant grown in greenhouse (photo by W. Martin, Still Photo Unit, University of Washington); b, seed,  $\times$  ca. 20.

mm. long, retrorsely puberulent; styles three, 10–12 mm. long, filiform, nearly straight, the stigmatic papillae few and congested at tip; ovary glabrous, at maturity ovoid with walls woody-cartilaginous, opening with five teeth; seeds about 2.5 mm. long, black, shiny, with concentric longitudinal rows of short conical tubercles.  $2n = 48$ . Figs. 1–3.

Type. Siskiyou County, California: 1.0 mile north of Somes Bar on road to Camp Three, June 22, 1954, *C. L. Hitchcock* 20221 (WTU 179156); another specimen (topotype) from 5.5 miles above Somes Bar on road to Camp Three, growing in loose talus of gabbroic rock, *A. R. Kruckeberg* 4023 (WTU 172672). Some of the vegetation associated with *Kruckeberg* 4023 is as follows: *Pseudotsuga menziesii*, *Quercus*

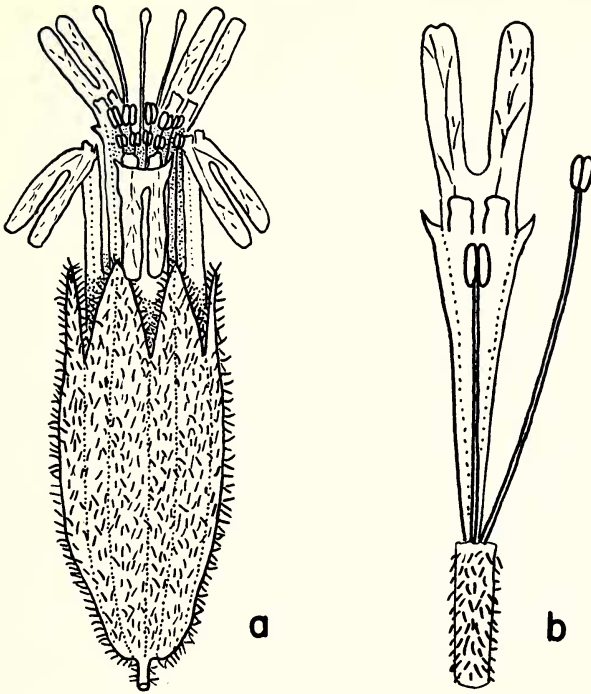


FIG. 3. Flower of *Silene marmorensis*: a, single whole flower; b, carpophore with attached single petal and stamen. All  $\times 7$ .

*kelloggii*, *Arbutus menziesii*, *Cornus nuttallii*, *Quercus chrysolepis*, *Acer macrophyllum*, *Pinus lambertiana*, *P. ponderosa*, *Lithocarpus densiflora*, *Corylus californica*, *Ceanothus integerrimus*, and *Cercis occidentalis*; also a sparse covering of such herbaceous plants as *Cynoglossum occidentale*, *Poa* sp., *Galium* sp., *Stephanomeria* sp., *Polystichum lemmonii*, *P. munitum*, *Pteridium aquilinum*, *Hieracium albiflorum*, *Eriophyllum lanatum*, *Iris* sp., and *Smilacina racemosa*.

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